1. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(10 - 4i)(-6 - 8i)$$

A. $a \in [-38, -25]$ and $b \in [-104, -102]$

B. $a \in [-38, -25]$ and $b \in [104, 108]$

C. $a \in [-92, -87]$ and $b \in [52, 57]$

D. $a \in [-92, -87]$ and $b \in [-56, -54]$

E. $a \in [-63, -58]$ and $b \in [28, 35]$

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2. Simplify the expression below and choose the interval the simplification is contained within.

$$12 - 8 \div 13 * 16 - (15 * 14)$$

A. $[-202.04, -193.04]$

B. $[-182.85, -176.85]$

C. $[-213.85, -203.85]$

D. $[219.96, 223.96]$

E. None of the above

---

3. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{-567}{9}}i + \sqrt{55}i$$

A. Not a Complex Number

B. Pure Imaginary

C. Nonreal Complex

D. Rational

E. Irrational

4. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{\sqrt{119}}{20} + \sqrt{-6}i$$

A. Pure Imaginary

B. Nonreal Complex

C. Irrational

D. Not a Complex Number

E. Rational

5. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{45 - 22i}{7 - 4i}$$

A. $a \in [6.04, 6.3]$ and $b \in [-0.5, 1]$

B. $a \in [6.04, 6.3]$ and $b \in [25.5, 28]$

C. $a \in [402.98, 403.23]$ and $b \in [-0.5, 1]$

D. $a \in [3.36, 3.52]$ and $b \in [-6, -4.5]$

E. $a \in [6.28, 6.6]$ and $b \in [5, 6]$

6. Simplify the expression below and choose the interval the simplification is contained within.

$$9 - 4^2 + 16 \div 18 * 7 \div 17$$

A. $[25.34, 26.01]$

B. $[-7.31, -6.88]$

C. $[24.16, 25.14]$

D. $[-6.66, -6.5]$

E. None of the above

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7. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(6 - 3i)(7 - 10i)$$

A. $a \in [36, 44]$ and $b \in [28, 35]$

B. $a \in [9, 14]$ and $b \in [80, 82]$

C. $a \in [66, 75]$ and $b \in [-40, -38]$

D. $a \in [66, 75]$ and $b \in [38, 47]$

E. $a \in [9, 14]$ and $b \in [-81, -77]$

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8. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-63 + 33i}{-6 + 2i}$$

A. $a \in [7.5, 8.5]$ and $b \in [-9, -7]$

B. $a \in [10, 11]$ and $b \in [15.5, 17]$

C. $a \in [11, 12]$ and $b \in [-2.5, -0.5]$

D. $a \in [443, 445]$ and $b \in [-2.5, -0.5]$

E. $a \in [11, 12]$ and $b \in [-73.5, -71.5]$

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9. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{102400}{256}}$$

A. Rational

B. Integer

C. Irrational

D. Whole

E. Not a Real number

---

10. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{14}{0}}$$

A. Rational

B. Irrational

C. Not a Real number

D. Whole

E. Integer
